

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for providing a packet service data from a serving GPRS (General Packet Radio Service) support node (SGSN) to a user equipment (UE) when the UE moves to a second cell managed by a second radio network controller (RNC), the UE requesting permission to receive the packet service in a first cell managed by a first RNC, in a mobile communication system providing a packet service, the method comprising the steps of:

transmitting by the first RNC to the second RNC through an Iur interface control information necessary for providing the packet service to the UE, ~~to the second RNC~~;

receiving by the second RNC the control information and receiving through an Iu interface the packet service data; and

when the second RNC can provide the packet service, notifying by the second RNC the first RNC that the second RNC is providing the packet service;

when the second RNC cannot provide the packet service, sending by the second RNC to the SGSN a request for the setup of the packet service;

transmitting by the second RNC through the Iu interface the packet service data to the UE; and

storing by the SGSN a Packet Data Protocol (PDP) list, a UE list and an RNC list for each packet service type.

2. (Original) The method of claim 1, further comprising the step of transmitting by the second RNC the packet service data to the UE through a radio bearer (RB) after setting up the RB according to the received control information.

3. (Currently Amended) A method for providing a packet service to a user equipment (UE) when the UE moves to a second cell managed by a second radio network controller (RNC), the UE requesting permission to receive the packet service in a first cell managed by a first RNC, in a mobile communication system providing the packet service, the method comprising the steps of:

transmitting by the first RNC to the second RNC through an Iur interface control
information necessary for providing the packet service to the UE, ~~to the second RNC;~~

analyzing by the second RNC the control information and notifying the first RNC that the
second RNC is providing the packet service, when the second RNC can provide the packet
service; ~~and~~

sending by the second RNC to a Serving General Packet Radio Service (GPRS) Support
Node (SGSN) a request for the setup of the packet service, when the second RNC cannot provide
the packet service;

transmitting by the second RNC through the Iu interface packet service data to the UE;
and

storing by the SGSN a Packet Data Protocol (PDP) list, a UE list and an RNC list for
each packet service type.

4. (Currently Amended) The method of claim 3, further comprising the steps of:

~~sending by the second RNC a request for the packet service to a serving GPRS (General
Packet Radio Service) support node (SGSN) when the second RNC cannot provide the packet
service;~~

sending by the SGSN a request for radio resource assignment for providing the packet
service, to the second RNC, in response to the packet service request of the second RNC;

assigning by the second RNC a radio resource for providing the packet service in
response to the radio resource assignment request;

notifying, by the second RNC, the first RNC that the second RNC is providing the packet
service, after assigning the radio resource.

5. (Original) The method of claim 4, further comprising the steps of:

transmitting by the second RNC the packet service data to the UE; and

transmitting by the second RNC the packet service data to the UE over a common
channel if a number of UEs requesting the packet service in the second cell is larger than or equal
to a predetermined number, and transmitting the packet service data over a dedicated channel if

the number of UEs requesting the packet service in the second cell is smaller than the predetermined number.

6. (Original) The method of claim 4, further comprising the steps of:

sending by the UE a request for closing the packet service to the SGSN upon receiving a request for closing the packet service;

sending by the SGSN a request for closing the packet service by the UE to the first RNC in response to the packet service close request of the UE; and

sending by the first RNC a packet service close request of the UE to the second RNC in response to the packet service close request of the UE to suspend by the second RNC transmission of packet service data to the UE.

7. (Original) The method of claim 6, further comprising the steps of:

suspending by the second RNC transmission of the packet service data to the UE upon receiving the packet service close request of the UE from the first RNC; and

sending by the second RNC a request for closing the packet service to the SGSN when there is no other UE receiving the packet service in the second cell, after suspending transmission of the packet service data.

8. (Original) The method of claim 6, further comprising the step of updating by the second RNC a context of the packet service by including a UE identifier of the UE in the context of the packet service when the second RNC can provide the packet service.

9. (Original) The method of claim 8, further comprising the step of updating the context of the packet service by deleting the UE identifier from the context of the packet service, upon receiving the packet service close request of the UE from the first RNC.

10. (Currently Amended) An apparatus for providing a packet service to a user equipment (UE) when the UE moves to a second cell, the UE requesting permission to receive the packet

service in a first cell, in a mobile communication system providing the packet service, the apparatus comprising:

a first RNC, which manages the first cell, for transmitting through an Iur interface control information necessary for providing the packet service to the UE requesting the packet service; and

a second RNC, which manages the second cell, for:

receiving through the Iur interface the control information from the first RNC;[[,]]

analyzing the control information;[[,]]

notifying the first RNC that the second RNC is providing the packet service when the second RNC can provide the packet service;~~and~~

sending to a Serving General Packet Radio Service (GPRS) Support Node (SGSN) a request for the setup of the packet service when the second RNC cannot provide the packet service; and

transmitting through an Iu interface packet service data to the UE,

wherein the SGSN stores a Packet Data Protocol (PDP) list, a UE list and an RNC list for each packet service type.

11. (Currently Amended) A method for providing a packet service to a user equipment (UE) when the UE moves to a second cell managed by a second radio network controller (RNC), the UE requesting permission to receive the packet service in a first cell managed by a first RNC, in a mobile communication system providing the packet service, the method comprising the steps of:

transmitting by the first RNC to the second RNC through an Iur interface a UE identifier of the UE, a service identifier indicating the packet service, and information on a radio resource currently set up to the UE,~~to the second RNC;~~

receiving through the Iur interface by the second RNC the UE identifier, the service identifier, and the radio resource information, ~~and~~ notifying the first RNC that the second RNC is providing the packet service when the second RNC can provide a packet service indicated by the packet service identifier, and sending to a Serving General Packet Radio Service (GPRS) Support

Node (SGSN) a request for the setup of the packet service when the second RNC cannot provide the packet service; and

transmitting by the second RNC through an Iu interface packet service data to the UE,
wherein the SGSN stores a Packet Data Protocol (PDP) list, a UE list and an RNC list for each packet service type.

12. (Currently Amended) The method of claim 11, further comprising the steps of:
~~sending by the second RNC a request for the packet service to a serving GPRS (General Packet Radio Service) support node (SGSN) when the second RNC cannot provide the packet service;~~

sending by the SGSN a request for assigning a radio resource for providing the packet service to the second RNC along with a service identifier in response to the packet service request from the second RNC;

assigning by the second RNC the radio resource for providing the packet service in response to the radio resource assignment request;

notifying, by the second RNC, the first RNC that the second RNC is providing the packet service, after assigning the radio resource; and

transmitting by the second RNC the packet service data to the UE.

13. (Original) The method of claim 11, further comprising the steps of:
transmitting by the second RNC the packet service data to the UE; and
transmitting by the second RNC the packet service data to the UE over a common channel if a number of UEs requesting the packet service in the second cell is larger than or equal to a predetermined number, and transmitting the packet service data to the UE over a dedicated channel if the number of UEs requesting the packet service in the second cell is smaller than the predetermined number.

14. (Original) The method of claim 12, further comprising the steps of:
sending by the UE a request for closing the packet service to the SGSN upon receiving a packet service close request;

sending by the SGSN a request for closing the packet service by the UE to the first RNC in response to the packet service close request of the UE; and

sending by the first RNC a request for closing the packet service by the UE to the second RNC in response to the packet service close request of the UE to suspend by the second RNC transmission of packet service data to the UE.

15. (Original) The method of claim 14, further comprising the steps of:

suspending by the second RNC transmission of the packet service data to the UE upon receiving the packet service close request of the UE from the first RNC; and

sending by the second RNC a request for closing the packet service to the SGSN when there is no other UE receiving the packet service in the second cell, after suspending transmission of the packet service data.

16. (Original) The method of claim 14, further comprising the step of updating a context of the packet service by including a UE identifier of the UE in the context of the packet service when the second RNC can provide the packet service.

17. (Original) The method of claim 16, further comprising the step of updating the context of the packet service by deleting the UE identifier from the context of the packet service upon receiving the packet service close request of the UE from the first RNC.

18. (Currently Amended) An apparatus for providing a packet service to a user equipment (UE) when the UE moves to a second cell, the UE requesting permission to receive the packet service in a first cell, in a mobile communication system providing the packet service, the apparatus comprising:

a first RNC, which manages the first cell, for transmitting through an Iur interface a UE identifier of the UE, a service identifier indicating the requested packet service, and information on a radio resource currently set up by the UE; and

a second RNC for;

receiving through the Iur interface the UE identifier, the service identifier and the radio resource information;[[,]]

notifying the first RNC that the second RNC is providing the packet service when the second RNC can provide the packet service;~~and~~

sending to a Serving General Packet Radio Service (GPRS) Support Node (SGSN) a request for the setup of the packet service when the second RNC cannot provide the packet service; and

transmitting through an Iu interface packet service data to the UE,

wherein the SGSN stores a Packet Data Protocol (PDP) list, a UE list and an RNC list for each packet service type.